Classification:
Short Stature impairment - refinement

Example of best practice nr. 13
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Problem signaling
Players with short stature from the Czech Republic and one from The Netherlands who have a short arm length, feel that their limited arm length is not yet taken into consideration enough when defining the arm profile.

Problem analysis
(1) their Volume of Action/Reach is significantly limited,
(2) their arm strength is limited compared with normal muscle length while origo and insertion are closer to each other,
(3) the stick cannot be made long (in order to have more reach) while their shoulder cannot handle the force needed for playing with such a long stick due to their limited arm length and strength and
(4) gripping(-strength) of the handstick is limited due to the short fingers (complaint is that the handstick is several times on the ground during the game when it is touched by an opponent).

Planning solution
We consulted three important classification information sources:
(1) The expert opinion from experienced PCH classifiers (month June 2022).
(2) Scientific research on body segment length and the application to persons with a physical disability (article Canda: see below).
(3) the opinion from the involved athletes with Short Stature themselves (Bever Cup Eindhoven May 2022).

Solution
First: assess the ROM as solid starting point and give a _preliminary Arm profile (Ap)._
Second: assess the arm length:
- **For non-disabled Men** the shortest length of the Arm, including the hand in fist shape (in a population of 545 men*) was **56 cm**: the sum of the shortest Upperarm (27 cm) and shortest Forearm (21 cm) and shortest mid fist (8 cm) = *(still) normal/not impaired length.*
- **Men with short stature**:
  First criterium: the length of the arm, inclúding *mid* fist, needs to be equal or shorter than **45 cm** to be considered as *impaired length*: 20 % less of 56 cm.
  In this case a **0.5 point distraction** is given from the preliminary Ap.
  Second criterium: 40% less of 56 cm = arm length **34 cm** (or less).
  In this case a **1.0 point distraction** from the preliminary Ap is given.

- *For non-disabled Women* the shortest length of the Arm, including the hand in fist shape (in a population of 502 Women*) was **51 cm**: the sum of the shortest Upperarm (25 cm) and shortest Forearm (19 cm) and shortest mid fist (7 cm) = *(still) normal/not impaired length.*
- *Women with Short Stature:*
  <u>First criterium</u>: the length of the arm, inclúding *mid* fist, needs to be equal or shorter than **41 cm** to be considered as *impaired length*: 20 % less of 51 cm.
  In this case a **0.5 point distraction** is given from the preliminary Ap.
  <u>Second criterium</u>: 40% less of 51 cm = arm length **31 cm** (or less).
  In this case a **1.0 point distraction** from the preliminary Ap is given.

For **assessing the arm length** the *'acromiale'* as begin point on the shoulder for measuring is an important landmark. Below you will find how to find this landmark. Measure the <u>distance between acromiale and pencil in fist player</u> with the arm as straigth as possible.

Locating the landmark Acromiale

The acromiale is the point on the superior part of the acromion border in line with the most lateral aspect. Viewed from the side, it is midway between the anterior and posterior borders of the deltoid muscle.

To locate the acromiale:
1. The athlete should be sitting in a comfortable erect position with the arms hanging comfortably on the side in a slightly pronated position.
2. The Classifier should stand on the side of the athlete that is to be measured.
3. The Classifier palpates along the clavicle with one hand, and along the border of the scapula with the other hand. The Classifier's hands will gradually converge, and the point at which they meet will be the acromion.
4. The Classifier should find the <u>most superior and lateral point</u> of the acromion and, using your fingernail, make a small horizontal indentation in the skin at that point.
5. The Classifier should mark this with a horizontal line approximately 2cm long using the pen.

Important points:
> To confirm the most lateral point on the acromion border, it may be helpful to apply the straight edge of a pencil to the lateral border of the acromion. Mark that point and then palpate superiorly to the top margin of the acromion border in line with this most lateral aspect. This is the acromiale.
- It is critical that the line is horizontal, not vertical.
- Make sure the skin is not stretched upwards or downwards when making the indentation with your fingernail. Otherwise, when the skin is released, the indentation will no longer be in the correct position.
- Do not confuse the coracoid process with the acromiale. The coracoid process is situated anteriorly, approximately 2cm below the junction of the middle and lateral thirds of the clavicle.

Third: assess the grip strength. Mostly this strength will still be MRC 4, but cán be MRC 3. Take this into consideration when defining the final Ap score.

In the attachment of this Example of best practice-mail, you will find the **Ap table Short Stature** which summarizes the criteria for each Arm profile.

Implementation solution
From players with Short Stature who are already internationally classified, the C-status will be changed to the R-status, meaning that those players will be put on the classification schedule for the next international tournament to be re-classified according the above criteria. In your country you can re-classify those players with Short Stature and short arms and give them a (new) national class according these criteria.

Arm- profile (Ap)	Impairment athlete: Short Stature Assessment: (1) measuring ROM in degrees to define preliminary Ap (2) arm length (Acromiale till mid fist): eventually 0.5 or 1.0 distraction on Ap (3) grip strength
Ap 4.0	**5 mov. couples indicate 4.0: ROM 76% - 100% ánd** **Arm lenght > 45 cm (man) = 20% less of 56 cm.** **>41 cm (woman) = 20% less of 51 cm.**
Ap 3.5	5 movement couples indicate ROM 3.5 ór Arm length ≤ 45 /41 cm (20% less of 56/51 cm), but Arm length > 34 / 31 cm (40% less of 56/51 cm)
Ap 3.0	**5 mov. couples 3.0: ROM 51-75% ór** **5 mov. couples 3.5, arm length ≤ 45/41 ór** **5 mov. couples 4.0, arm length ≤ 34/31 cm**

Ap 2.5	5 mov. couples 2.5 ór 5 mov. couples 3.0, arm length ≤ 45/41 cm ór 5 mov. couples 3.5, arm length ≤ 34/31 cm
Ap 2.0	**5 mov. couples 2.0: ROM 26-50% ór** **5 mov. couples 2.5, arm length ≤ 45/41 cm ór** **5 mov. couples 3.0, arm length ≤ 34/31 cm**
Ap 1.5	5 mov. couples 1.5 ór 5 mov. couples 2.0, arm length ≤ 45/41 cm ór 5 mov. couples 2.5, arm length ≤ 34/31 cm
Ap 1.0	**5 mov. couples 1.0: ROM 0-25% ór** **5 mov. couples 1.5, arm length ≤ 45/41 cm ór** **5 mov. couples 2.0, arm length ≤ 34/31 cm**